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| 09/821,110  | 03/29/2001  | Paul A. Underbink    | B-64418D (044368/0455)        | 3271             |
| 20594   | 7590        | 01/20/2004           |                               |                  |
| CHRISTOPHER J. ROURK<br>AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.<br>P O BOX 688<br>DALLAS, TX 75313-0688 |             |                      | EXAMINER<br>CRAVER, CHARLES R |                  |
|   |             |                      | ART UNIT                      | PAPER NUMBER     |
|   |             |                      | 2682                          |                  |

DATE MAILED: 01/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
09/821,110

Applicant(s)  
Underbrink et al

Examiner  
Charles Craver

Art Unit  
2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Oct 14, 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 17 and 20-38 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17 and 20-36 is/are rejected.
- 7) ☒ Claim(s) 37 and 38 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Mar 29, 2001 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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## **DETAILED ACTION**

### ***Specification***

1. The preliminary amendment filed 3/29/01 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the entirety of claim 28. The specification is also objected to as failing to provide proper antecedent basis for the aforementioned claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 28-30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 28 states that the mobile station may measure its own (transmitted) signal strength to determine a change in orientation, but such a teaching is not

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found in the specification. Since the instant invention is a Divisional application, and claim 28 was added in a preamendment, the limitation of claim 28 is deemed as New Matter. As such, the New Matter must be canceled, or alternatively, the applicant may petition to change the status of the application to that of a Continuation-In-Part (CIP), which would overcome the New Matter rejection above. For further information, please see MPEP §608.04(b)(c), 706.03(o) and 714.01(e).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley in view of Werling and Filimon.

**Claims 17 and 20:** Bradley discloses a system for radio telecommunications (FIG 1) comprising

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a plurality of service areas, each having an associated satellite (col 2 lines 42-61, col 3 lines 45-56, col 4 lines 1-18),

at least one handheld wireless unit having at least one directional antenna (402, col 3 lines 18-37), and

wherein the plurality of satellites (areas) are coordinated to provide communications services to the handheld devices when each device changes the orientation of its directional antenna (col 4 lines 43-61). That is, in a case where a user changes their (and the phone's) orientation, and thus puts another object in the way of the antenna beam from the phone, the phone may then hand off to another satellite (col 9 line 54-col 10 line 2).

Bradley fails to disclose that the system may utilize service cells with associated base stations, that is, a terrestrial cellular system, or a patch antenna for transmitting or receiving.

Werling discloses an analogous art, that is, a handheld communications device utilizing a directional antenna, wherein the radiation pattern may be modified in a way very similar to that taught by Bradley (col 2 lines 7-35, col 2 line 54-col 3 line 33), and wherein said handheld unit is useful in a terrestrial cellular system (col 1 lines 15-49).

Filimon discloses an analogous art, that is, a handheld telephone which is designed to keep radiation away from the user (col 2 lines 30-62), in which a patch antenna may be utilized to transmit and receive (col 3 line 58-col 4 line 36). As such, said recitation would also teach claim 20, since claim 20 fails to distinguish the two antennas as separate.

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Therefore, it would have been obvious to one of ordinary skill in the art to add such features to Bradley. The motivation to do so comes from Bradley, where it is disclosed that the unit may operate on a satellite system, and may also communicate via ground stations (col 2 lines 42-61), and from Werling, which discloses the utility of using such directional antenna in a terrestrial cellular system in order to reduce "noxious radiation". Further note Filimon, where it is taught that a patch antenna is useful for use in a handheld device which is held close to the user (col 3 lines 39-45 and 58-63, col 5 lines 25-28), such as in Bradley and Werling.

**Claim 21:** Filimon further discloses that a monopole antenna may be used to transmit and receive signals (col 2 lines 48-49).

**Claim 22:** Bradley discloses a call setup and handover system (reads call routing and mapping) coupled to each satellite (service area) for setting up calls, inherently allocating bandwidth, between the user and the service areas, and for handing over calls (accommodating the change in orientation of the user, col 12 line 30-col 13 line 20).

7. Claims 31, 32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley in view of Werling.

**Claim 31:** Bradley discloses a system for radio telecommunications (FIG 1) comprising determining an orientation of a user having a directional wireless device (402, col 3 lines 18-37, col 9 lines 13-36),

establishing a call channel with said device from a first satellite (col 9 lines 37-42),

determining a change in said orientation of said device (col 9 lines 43-61), and

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setting up a new call channel with the user and a second satellite (col 9 line 61-col 10 line 2).

Bradley fails to disclose that the system may utilize service cells with associated base stations, that is, a terrestrial cellular system.

Werling discloses an analogous art, that is, a handheld communications device utilizing a directional antenna, wherein the radiation pattern may be modified in a way very similar to that taught by Bradley (col 2 lines 7-35, col 2 line 54-col 3 line 33), and wherein said handheld unit is useful in a terrestrial cellular system (col 1 lines 15-49).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Bradley to operate in a terrestrial cellular system. The motivation to do so comes from Bradley, where it is disclosed that the unit may operate on a satellite system, and may also communicate via ground stations (col 2 lines 42-61), and from Werling, which discloses the utility of using such directional antenna in a terrestrial cellular system in order to reduce "noxious radiation".

**Claim 32:** the user device's orientation would inherently be based on which station is providing service, since the antenna beam has a limited direction.

**Claim 36:** Bradley discloses that the new channel setup may utilize a different antenna beam shape (col 9 line 54-col 10 line 2), that is, a different transmission and reception characteristic.

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8. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montoya in view of Werling et al.

**Claim 23:** Montoya discloses a method for providing cellular communications (col 3 lines 43-65) comprising

determining the location of a user having a wireless device (col 4 line 63-col 5 line 8), allocating call resources at least one cell, including setting up a call channel with the user (col 5 lines 9-65).

Montoya fails to disclose that the user device has a directional antenna.

Werling discloses the utility of providing a cellular user with a device comprising a directional antenna (col 2 lines 7-35, col 2 line 54-col 3 line 33) as it reduces radiation in the direction of the user (col 2 lines 22-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a directive antenna in the user device of Montoya. The motivation to do so is provided by Werling, where it is stated that such an antenna reduces radiation towards the user.

**Claim 24:** Montoya discloses that the determination of the location of the user may be done periodically and continuously (col 5 lines 4-8), in which case the location may be determined while (reads in parallel) the call is being set up.

9. Claims 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montoya in view of Werling as applied to claim 23 above, and further in view of Bradley.



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**Claim 25:** Montoya in view of Bradley discloses applicant's invention of claim 23 as shown above; Montoya further discloses that the user may be handed over to an optimal cell based on a change in a user location (col 6 lines 10-59). However, Montoya in view of Werling fails to disclose that such a change may be made when the user changes the orientation of the antenna.

Bradley discloses an analogous art, that is, a system for radio telecommunications (FIG 1) comprising a plurality of service areas, each having an associated station, (col 2 lines 42-61, col 3 lines 45-56, col 4 lines 1-18), and at least one handheld wireless unit, wherein the unit has a directional antenna (402, col 3 lines 18-37), and wherein the plurality of satellites (areas) are coordinated to provide communications services to the handheld devices when each device changes the orientation of its directional antenna (col 4 lines 43-61). That is, in a case where a user changes their (and the phone's) orientation, and thus puts another object in the way of the antenna beam from the phone, the phone may then hand off to another satellite (col 9 line 54-col 10 line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the handover feature of Bradley to the combined invention of Montoya in view of Werling. Montoya in view of Werling teaches a cellular system using handover wherein a user device has a directional antenna. Bradley discloses that a radio communication system using handheld directional antennas suffers from signal loss when a user changes the antenna orientation, and handover is often needed. Therefore, one of ordinary skill in the art would have

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been motivated by Bradley to handover to a new cell in Montoya in view of Werling in order to lower the number of dropped calls.

**Claim 27:** the invention of Montoya in view of Werling and Bradley would inherently handover the device to the other cell when the unit is rotated in such a direction that the directional antenna beam is pointing at the new cell.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montoya in view of Werling and Bradley as applied to claim 25 above, and further in view of Rudrapatna et al.

While disclosing applicant's invention of claim 25 above, the combined invention of Montoya in view of Werling and Bradley fails to disclose that the change in orientation of the user may be determined by measuring signal strength of the device at two or more base stations.

Rudrapatna discloses an analogous art, that is, a means for locating a cellular device for handover purposes (col 3 lines 21-51), in which such a system benefits from not only determining the location of the user, but also the direction in which the user is moving (col 4 lines 16-41), and wherein further the orientation of the user is determined by measuring the device's signal strength at two or more base stations (col 3 lines 52-66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add such a feature to Montoya in view of Werling and Bradley. Montoya in view of Werling and Bradley disclose a device which may determine an orientation for handover.

Rudrapatna discloses that a cellular locating and direction finding system for handover benefits

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from using triangulation to find the location and direction of the user, as such may allow the system to anticipate resource allocation (col 2 lines 31-39), and thus allow an amount of leeway in setting up the channel, which would result in fewer dropped calls.

11. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley in view of Werling as applied to claim 31 above, and further in view of Rudrapatna et al.

While disclosing applicant's invention of claim 31 above, the combined invention of Bradley in view of Werling fails to disclose that the change in orientation of the user may be determined by triangulation, that is, measuring the strength of the device at two or more base stations, or by determining which station receives the strongest signal.

Rudrapatna discloses an analogous art, that is, a means for locating a cellular device for handover purposes (col 3 lines 21-51), in which such a system benefits from not only determining the location of the user, but also the direction in which the user is moving (col 4 lines 16-41), and wherein further the orientation of the user is determined by measuring the device's signal strength at two or more base stations and triangulating the location (col 3 lines 52-66), and that the measurements may be graphed (FIG 3), showing which cell receives the highest signal strength.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add such a feature to Bradley in view of Werling. Bradley in view of Werling discloses a device which may determine an orientation for handover. Rudrapatna discloses that a

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cellular locating and direction finding system for handover benefits from using triangulation to find the location and direction of the user, as such may allow the system to anticipate resource allocation (col 2 lines 31-39), and thus allow an amount of leeway in setting up the channel, which would result in fewer dropped calls.

*Allowable Subject Matter*

12. Claims 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and to overcome the rejection under 35 USC 112, 1st paragraph, shown above.

13. Claims 37 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 28 teaches towards a directional wireless device and cellular system, in which the device may be handed over to another cell based on a detected change in orientation of the user, and in which the aforementioned change in orientation is detected by the device measuring its own signal strength. While it is known for the mobile station to measure a downlink signal strength (see Rudrapatna et al), one of ordinary skill in the art would not have been motivated by the prior art to measure the uplink signal strength at the mobile station. Claim 28 discloses a

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series of elements which are neither taught nor suggested by the prior art. Claims 29 and 30 are deemed to contain allowable subject matter based on their dependence on claim 28.

Claims 37 and 38 teach towards a directional wireless device and cellular system, in which the device may be handed over to another cell based on a detected change in orientation of the user, and wherein handover is facilitated by allocating call resources at every cell which encircles the cell the user is in.

#### ***Response to Arguments***

14. Applicant's arguments filed 10-14-03 have been fully considered but they are not persuasive.

First, regarding the rejection of claim 28 under 35 USC 112, the examiner upholds the rejection as the claim has not been amended to overcome the rejection. While the specification may cite that the mobile unit receives "handover commands", such a recitation is different from the claimed limitation of, at the mobile unit, measuring its own signal strength, especially since it is not taught that the handover commands include a signal strength.

Second, noting Bradley in view of Werling/Filimon, it is noted with regards to claim 17 that while the combined invention teaches a mobile device which may automatically change its own antenna pattern, such as stated above is the process which would inherently occur when the orientation of the device is changed in the case of an obstacle. As to the use of a patch antenna, patch antennas are able to change antenna beam structure as noted by newly cited reference

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Huang. Noting claim 31, it is reiterated as above that changing orientation of the unit may bring an obstacle into view which would thus facilitate the changing of the antenna beam as taught by Bradley, as such determining a change in orientation.

As to the combination of Bradley and Werling, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, an antenna with the requisite ability to communicate with e.g. a satellite system is established in Bradley, and as such if the combined invention was for use in a satellite system, such an antenna would already be provided. In the combination of Bradley in view of Werling for example, the invention of Bradley is modified for use in a terrestrial system, as opposed to modifying the cellular device of Werling and modifying it for use in a satellite system of Bradley.

Regarding claims 23 and 24, while it is true that Montoya discloses allocating call resources at one cell, the fact remains that the plain claim language states “one or more adjacent cells”. As stated by the applicant, Montoya discloses traditional hand-off processing; in traditional hand-off, when a mobile switches from one cell to another, the new adjacent cell allocates call resources when setting up the new channel. Although Montoya discusses one cell, claims 23 and 24 are written in alternate form, so one adjacent cell is sufficient to render such claims obvious.

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***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huang discloses a directional patch antenna system.

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 872-9314, (for formal communications intended for entry)

**Or:**

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(703) 872-9314 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

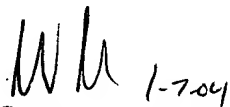
Hand delivered responses should be brought to Crystal Park II, 2121 Crystal  
Drive, Arlington VA, sixth floor (receptionist).

18. Any inquiry concerning this communication or earlier communications from the examiner  
should be directed to Charles Craver whose telephone number is (703) 305-3965.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, Vivian Chin, can be reached on (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Group receptionist whose telephone number is (703) 305-4700.

C. Craver  
January 7, 2004

  
1-7-04  
CHARLES CRAVER  
PATENT EXAMINER